Protocols for Teaching Intermediate to Advanced Listener, Tact, and Intraverbal Responding by Feature, Function, or Class during Discrete Trial Instruction

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OVERVIEW

• Learner Profiles
  – Intermediate
  – Intermediate to Advanced

• What is discrete trial instruction (DTI)?

• Teaching intermediate and advanced responding by feature, function, or class across the operants:
  – Listener Responding by Feature, Function, or Class (LRFFC)
  – Tacting by Feature, Function, or Class (TFFC)
  – Intraverbal Responding by Feature, Function, or Class (IFFC)

• Data collection and graphing

INTERMEDIATE LEARNER PROFILE

• A learner whose skills fall primarily within Level 2 (18 – 30 months) on the VB-MAPP

• This learner will typically
  – Mand for items when present or out of sight (10 – 30)
  – Mand for others to emit actions (3 – 10)
  – Mand for missing items needed to complete a task (5 – 20)
  – Tact 25 – 200 items (and multiple exemplars)
  – Tact actions (3 – 10)
  – Tact parts/features of items (2 – 4 parts/features for 3 – 10 items)
  – Perform motor actions on command (4 – 10)
  – Within a messy field of 4 – 6, select pictures/objects by name (20 – 40)
  – Emit simple intraverbal fill-in responses (5 – 25)

INTERMEDIATE TO ADVANCED LEARNER PROFILE

• A learner whose skills virtually fill Level 2 (18 – 30 months) and are beginning to fall into Level 3 (30 – 48 months) on the VB-MAPP

• In addition to the intermediate skills previously mentioned, this learner will typically
  – Emit mands containing two- and three-word combinations
  – Mand for a variety of over 100 reinforcers
  – Learn new mands without formal/intensive training
  – Be beginning to mand for information using “wh” questions
  – Tact noun-verb combinations (50+)
  – Tact color, shape, and function of objects (5+)
  – Be beginning to tact using prepositions and pronouns
  – Tact parts/features of objects (2+ parts/features for 10 – 25 objects)
  – Follow two-step noun-verb/verb-noun instructions (50+)
  – Be beginning to select items based on descriptions or prepositions
  – Emit simple intraverbal fill-ins (25+)
What is discrete trial instruction (DTI)?

DTI

- DTI, a method conceived through the work of Sid Bijou (1940’s through 1960’s) and first demonstrated experimentally by Wolf, Risley, and Mees (1964), is also referred to as discrete trial training (DTT).
- DTI has been demonstrated to be an effective method of treatment and education for persons with autism (Smith, 2001).
- DTI is one of the most frequently implemented procedures for treating children with autism.
- All of the outcome studies that are presently published utilized DTI (Smith, Donahoe, & Davis, 2000).

- Smith (2001) indicates that a discrete trial has five components:
  1. Antecedent Stimulus – teacher presents an instruction (e.g., says, “Touch your nose,” or displays a picture and says, “Tell me which one you drink from?”)
  2. Prompt – teacher provides prompt if necessary (e.g., physical, vocal, model)
  3. Response – learner emits response
  4. Consequence – teacher delivers suspected reinforcer (for correct response); teacher implements an error correction procedure (if incorrect response)
  5. Inter-trial Interval – period of time passes between consequence for one response and presentation of next antecedent stimulus

Teaching Listener Responding by Feature, Function, or Class (LRFFC)

- DTI can be used to teach almost any skill in almost any environment.
- Skills that have been taught with discrete trial training include: language, social, vocational, cognitive, behavior reduction, imitation, etc. (Smith, 2001).
- The skills taught during DTI at an instructional table usually include the following:
  1. listener behavior (commands and selection)
  2. tacting (labeling)
  3. motor imitation
  4. visual performance (matching, sorting, etc.)
  5. intraverbal behavior (fill-ins, answering “wh” questions)
  6. echoic responses

Video - DTI
LISTENER RESPONDING by FEATURE, FUNCTION, and CLASS (LRFFC)

- Responding to items in the environment when provided a description of them and not their "names."
- A tendency to point to candy when someone says, "Touch what you like to eat."

EXAMPLES of INTERMEDIATE to ADVANCED LRFFC SKILLS

- When a field of 3 – 10 pictures with similar distractors is displayed,
  - "You cut with..."
  - "Give me the one with legs."
  - "Find/show me/point to an animal."
  - "Which one do you sit on?"

Common Goals
- ABLLS: C20 – C22
- ABLLS-R: C37 – 39

SELECTING LRFFC TEACHING TARGETS

- As listener responses become more complex, they may actually be dependent upon (i.e., facilitated or mediated by) speaker behavior, such as tacting (Schlinger, 2008).
- Therefore, prior to teaching LRFFC skills, it is recommended that the learner has been taught to tact the name of the pictured item (Petursdottir & Carr, 2011; Sprinkle & Miguel, 2012; Wynn & Smith, 2003).
LRFFC ERRORLESS TEACHING PROCEDURES:

PROMPT – TRANSFER/FADE – DISTRACTERs – PROBE

1. Prompt: Present the instructional demand (SD) and immediately (0-second time delay) prompt the learner to respond.

2. Transfer/Fade: Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.

3. Distracters: Require 1-5 easy, mastered responses.

4. Probe: Re-present the instructional demand and further fade the prompt or probe by waiting 3 seconds for the response to be emitted.

5. Reinforce or Error Correct:
   - If the learner’s response is correct, deliver a reinforcer. Differentially reinforce as appropriate.
   - If the learner’s response is incorrect, run the error correction procedure.

MODIFY THESE PROCEDURES AS NEEDED BASED UPON INDIVIDUAL LEARNER PERFORMANCE.

LRFFC TEACHING EXAMPLE

Teacher: Places pictures (3 – 10) of common items from different classes or with different features/functions on the table in messy field.

Teacher: “Give me the one with wings,” and immediately prompts by pointing to picture of the airplane. (PROMPT)

Learner: Gives the picture of the airplane to the teacher.

Teacher: Changes location of the pictures within the field.

Teacher: “Give me the one with wings,” and waits 2 seconds to allow learner to respond (TRANSFER) or fades some dimension of the gestural prompt (FADE).

Learner: Gives the picture of the airplane to the teacher.

Teacher: Changes location of the pictures within the field.

Teacher: “Give me the one with wings,” without prompting. (PROBE)

Learner: Gives the picture of the airplane to the teacher.

Teacher: “Nice job,” while delivering a cookie and turning on the TV.

DEFINING INCORRECT LRFFC RESPONSES

An error (i.e., incorrect response) occurs when the learner:

1. Emits a response not scheduled for reinforcement (i.e., wrong answer),
2. Chains two or more responses together (i.e., self-corrections),
3. Or fails to respond within 2-3 seconds following the presentation of the demand.

Errors may be emitted for both unknown (current acquisition skills) and known (previously mastered skills) targets.

Errors may also be emitted during teaching sequences (e.g., during prompted trials, during transfer trials, or on probes).

The same error correction procedure should be implemented regardless of when the error is emitted.

LRFFC ERROR CORRECTION PROCEDURE

1. Prompt: Reset the field/stimuli and re-present the instructional demand (SD) and immediately (0-second time delay) prompt the learner to respond.

2. Transfer/Fade: Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.

3. Distracters: Require 1-5 easy, mastered responses.

4. Probe: Re-present the instructional demand and further fade the prompt or probe by waiting 3 seconds for the response to be emitted.

5. Reinforce or Error Correct:
   - If the learner’s response is correct, deliver a reinforcer. Differentially reinforce as appropriate.
   - If the learner’s response is incorrect, run the error correction procedure again.

MODIFY THESE PROCEDURES AS NEEDED BASED UPON INDIVIDUAL LEARNER PERFORMANCE.
EXAMPLE of LRFFC ERROR CORRECTION

Teacher: Shows a picture of a bus (in a field of 3 – 10) and asks, “Give me the one that takes you places.”

Learner: Picks up the TV. (ERROR)

Teacher: Resets the field, asks, “Give me the one that takes you places” (RE-PRESENT 5%), and immediately points to the bus. (PROMPT)

Learner: Gives the picture of the bus to the teacher.

Teacher: Rotates the field, asks, “Give me the one that takes you places,” with 2-second time delay. (TRANSFER)

Learner: Gives the picture of the bus to the teacher.

Teacher: Rotates the field. Runs 1 – 5 distracters.

Teacher: “Give me the one that takes you places,” without prompting. (PROBE)

Learner: Gives the picture of the bus to the teacher.

Teacher: “There you go buddy,” while turning on the TV.

Teaching Tacting by Feature, Function, or Class (TFFC)

TACT (Label)

- Naming or identifying objects, actions, events, relations, properties, etc.
- A tendency to say, “candy,” when you see candy.

Antecedent

Non-Verbal Stimulus

Learner

Behavior

Verbal Behavior

Reinforcer

Non-Specific Reinforcement

EXAMPLES of INTERMEDIATE to ADVANCED TFFC SKILLS

- When a picture/object or several pictures/objects in a field are displayed.
  - “Tell me which one you use to cut.”
  - “Name something that has legs.”
  - “Name an animal.”
  - “Tell me something you sit on.”
  - “What color? What size? What is it?”

- Common Goals
  - ABLLS: G10 – G17
  - ABLLS-R: G12, G13, G15 – G17, G24 – G27
  - VB-MAPP: LRFFC 10-M; Tact 11-M and Skills 11-d, 11-g, 11-h, 12-a, 12-e

TACT

Does the child use nouns and verbs?

TACT

TOTAL SCORE

Assessment

1. Does the child use nouns and verbs?

Assessment

8 - 10

Does the child emit a wide variety of tacts, and do they contain several different parts of speech?

TACT

TOTAL SCORE

Assessment

11. Does the child emit a wide variety of tacts, and do they contain several different parts of speech?

Assessment

8 - 10
SELECTING TFFC TEACHING TARGETS

- Prior to teaching TFFC skills it is recommended that the learner has been taught to tact the name of the pictured item.
- It may also be beneficial if the learner has been taught other tacts relevant to the pictured item.
  - If teaching tacts by part/feature, having been taught to tact the relevant parts/features of the pictured item (e.g., for car learner tacts “wheel,” “door,” “window”).
  - If teaching tacts by function, having been taught to tact the relevant actions related to the function (e.g., for scissors learner tacts “cutting”).
  - It is not necessary that the learner has been taught to tact the class of the item, as this is a more complex skill that falls within Level 3 (30 – 48 months) on the VB-MAPP.

TEACHING LRFFC + TFFC SKILLS

- These skills are closely correlated to LRFFC skills.
- With some learners it may be possible to teach them to simultaneously tact by feature, function, or class while receptively selecting by feature, function, or class.
- To do this, use the same errorless teaching procedures as previously described for teaching LRFFCs, but vocally or mimetically prompt the learner to emit the vocal or sign tact for the name of pictured item when selecting it.

LRFFC + TFFC ERRORLESS TEACHING PROCEDURES: PROMPT – TRANSFER/FADE – DISTRACTORS – PROBE

1. Prompt: Present the instructional demand (S0) and immediately (0-second time delay) prompt the learner to respond.
2. Transfer/Fade: Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.
4. Probe: Re-present the instructional demand and further fade the prompt or probe by waiting 3 seconds for the response to be emitted.
5. Reinforce or Error Correct:
   - If the learner’s response is correct, deliver a reinforcer. Differentially reinforce as appropriate.
   - If the learner’s response is incorrect, run the error correction procedure.

MODIFY THESE PROCEDURES AS NEEDED BASED UPON INDIVIDUAL LEARNER PERFORMANCE.

LRFFC + TFFC TEACHING EXAMPLE

Teacher: Places pictures (3 – 10) of common items from different classes or with different features/functions on the table.
Teacher: “Give me the one with a mouse,” immediately prompts by vocally modeling (or signing) “computer,” and uses a gestural (point) prompt if necessary. (PROMPT)
 Learner: Gives the picture of the computer to the teacher and says, “computer.”
Teacher: Changes location of the pictures within the field.
Teacher: “Give me the one with a mouse,” and waits 2 seconds to allow learner to respond (TRANSFER) or fades some dimension of the gestural (or other) prompt (FADE).
 Learner: Gives the picture of the compute to the teacher and says, “computer.”
Teacher: “Yeah, good,” while turning on the movie.

DEFINING INCORRECT LRFFC + TFFC RESPONSES

An incorrect response occurs when the learner:
1. Emits a response not scheduled for reinforcement (i.e., wrong answer).
2. Chains two or more responses together (i.e., self-corrections).
3. Fails to respond within 2–3 seconds following the presentation of the demand,
4. Or selects the correct picture but fails to simultaneously tact the name of the pictured item.
LRFFC + TFFC ERROR CORRECTION PROCEDURE

- Use the same error correction procedure as previously described for LRFFC skills.

**Video – LRFFC + TFFC during DTI**

TEACHING TFFC SKILLS

- With other learners it may be necessary to teach TFFC skills separately.

**Video – TFFC during DTI**

TFFC TEACHING EXAMPLE

Teacher: Places three pictures of common items from three different classes (or with three different features/functions) on the table.
Teacher: “Tell me the one you eat,” and immediately prompts by pointing to picture of candy and vocally modeling (or signing) “candy” if necessary. (PROMPT)
Learner: Says, “candy.”
Teacher: Changes location of the pictures within the field.
Teacher: “Tell me the one you eat,” and waits 2 seconds to allow learner to respond (TRANSFER) or fades some dimension of the gestural (or other) prompt (FADE).
Learner: Says, “candy.”
Teacher: Changes location of the pictures within the field.
Teacher: “Tell me the one you eat,” without prompting. (PROBE)
Learner: Says, “candy.”
Teacher: “Good job,” while delivering a cookie and turning on the TV.

DEFINING INCORRECT TFFC RESPONSES and TFFC ERROR CORRECTION PROCEDURE

- An incorrect response is defined the same as it was for LRFFC skills.
- Use the same error correction procedure as previously described for LRFFC skills.

**Video – TFFC during DTI**

CONDITIONAL DISCRIMINATIONS

- Once several tacts of adjectives and nouns are acquired, learners with autism still make errors when required to tact some aspect of a stimulus under the control of a verbal stimulus.
- For example, when shown an object and asked to tact its size, color, or name, many learners will error because the controlling word in the request does not alter the evocative effect of a specific aspect of the stimulus.
- This type of conditional discrimination requires the learner’s behavior to be controlled by an auditory stimulus, “What color is it,” and then a specific visual stimulus in the form of the color of the item.
- A typical error that might occur when shown a pencil and asked, “What color is this,” is that the learner will say, “yellow pencil,” or even, “pencil.” Both of these errors indicate a problem related to the formation of a conditional discrimination.

**Video of Errors**

- When the correct response occurs, it does so because the word “color” changes the color of the pencil into a discriminative stimulus for the name of the color.

COLOR EXAMPLE

\[ S^0 \rightarrow \text{What Color is It?} \rightarrow \text{Looking Response} \rightarrow \text{Seeing the object} \]

\[ S^0 \rightarrow \text{Seeing the object} + \rightarrow \text{Response} \rightarrow \text{Reinforcer} \]

Word “Color” Has Evocative Control Over a Specific Response Related to the Color.
**Phase 1: Same Item-Different Questions**

**Step 1:** Gather materials (objects) that are known tacts.

**Step 2:** Present 6 items in random order following the data sheet. For example, present item 1, and ask, “What is it?” (Score a + or – depending on the response.) If the learner responds with an incorrect response, keep re-presenting the S0 until the learner responds correctly, then immediately present, “What color?” (Score a + or – depending on the response.)

**Note:** Do not error correct (no echoic prompts)

**Phase 2: Different Items-Different Questions**

**Step 1:** Use the same materials as you did in Phase 1, but break the materials up into 3 sets, each containing 2 objects. So in Set 1, you will have Item 1 & 2, in Set 2, you will have Item 3 & 4 and in Set 3, you will have Item 5 & 6.

**Step 2:** Present in each item in the set according to the data sheet. For example, present item 1 and ask, “What is it?” (Score a + or – depending on the response.) If the learner responds with an incorrect response, keep re-presenting the S0 until the learner responds correctly, then immediately present item 1 and ask, “What color?” (Score a + or – depending on the response.)

**Note:** Do not error correct (no echoic prompts)

**Criteria:** ≥90% correct across 2 days in order to move onto Phase 2.

**Note:** Change the order in which items are presented each day.

**Phase 1: Same Item-Different Questions**

<table>
<thead>
<tr>
<th>S0</th>
<th>Response</th>
<th>Reinforcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Size is it?</td>
<td>Looking Response</td>
<td>Seeing the object</td>
</tr>
<tr>
<td>Seeing Object</td>
<td>“BIG”</td>
<td>“That’s Right”</td>
</tr>
</tbody>
</table>

Word “Size” Has Evocative Control Over a Specific Response Related to the Size.

**TEACHING CONDITIONAL DISCRIMINATIONS**

**Pre requisite skills:**

- 150 – 200 tacts (nouns and verbs)
- Tacts of adjectives (e.g., size, color, length)
Phase 3 (novel stimuli): Same Item-Different Questions & Different Items-Different Questions

Step 1: Gather 6 novel objects that are known tacts.

Step 2: Present the items in a random order and either ask name or color according to data sheet. If the learner makes an error, do not correct or repeat, just move on.

Step 3: Run through all 30 trials randomly presenting the 6 items and score a % correct for the day.

Step 4: If ≥90% correct, repeat steps 1-3 next day with 6 different novel stimuli.

Criteria: ≥90% correct across 2 days in order to consider this conditional discrimination mastered. If the learner did not score ≥90% correct on either set of stimuli, use those stimuli and start over at Phase 1.

Teaching Intraverbal Responding by Feature, Function, or Class (IFFC)

INTRAVERBAL (Fill-ins/Conversation)

- Answering “wh” questions or having a conversation so that what you say is determined by what another person says.
- A tendency to say, “candy,” when someone else asks, “What do you like to eat?” or “Something you eat is ___.”

Reinforcer
Non-Specific Reinforcement

Examples of INTERMEDIATE to ADVANCED IFFC SKILLS

- When NO pictures are displayed
  - “You cut with a...”
  - “What’s something with legs?”
  - “Name an animal.”
  - “Tell me some things you sit on,” (gives several responses)
  - “Tell me something that flies...” (response) “And what’s something else that flies?” (response) “And one more thing that flies is a...” (response)

- Common Goals
  - ABLLS: H7 – H12, H13
  - ABLLS-R: H8, H9, H10, H11, H14 – H18
  - VB-MAPP: Intraverbal 8-M, 9-M, 10-M; Skills 9-a, 9-e, 10-e, 10-f, 12-a, 12-c, 12-d, 12-e, 14-b
REVIEW of INTRAVERBAL BEHAVIOR

- **Definition**: Skinner (1957) defined the intraverbal as a verbal response controlled by a verbal stimulus and the response product does not have point to point correspondence with the verbal stimulus.

- Skinner (1957) went on to discuss the function and form of the advanced intraverbal repertoire as follows:
  - “The intraverbal relations in any adult repertoire are the result of hundreds of thousands of reinforcements under a great variety of inconsistent and often conflicting contingencies. Many different responses are brought under the control of a given stimulus word, and many different stimulus words are placed in control of a single response.” (p. 74)

- Not all persons with autism develop a strong intraverbal repertoire and those who do sometimes develop a restricted or rote repertoire.

- These individuals can respond to only a few things that others say and usually with the same response on each occurrence.

- Moreover, the verbal stimulus must be presented in exactly the same way for the child to respond correctly.

- An intraverbal repertoire is your “intellectual” repertoire. Your knowledge and skill are frequently judged by the sophistication of your intraverbal repertoire.

- It is also your social repertoire. Conversations consist of mainly intraverbals and mands.

- Failure to develop an intraverbal repertoire reduces advanced social interactions and isolates the individual from the social environment.

- Some methods to overcome this problem are as follows:
  1. Begin teaching the intraverbal repertoire when the tact and listener repertoires are around a 30-month-old level.
  2. Teaching intraverbal behavior before these other skills are acquired will lead to rote and scripted responding at best.
  3. The following teaching procedures, once approximately a 2.5-year-old level of listener behavior and tacting have been established, will improve the likelihood of developing a functional intraverbal repertoire (i.e., developing the stimulus and response classes indicated in the Skinner quote just discussed).
When deciding to teach IFFCs, consider all relevant prerequisite skills:
- Does the learner have a sufficient repertoire of listener responses and tacts by feature, function, and class (LRFFCs and TFFCs)?
- Does the learner have a strong enough tact repertoire to support the development of this intraverbal repertoire? A robust tact repertoire will far exceed ABLLS/VB-MAPP criteria, will be characterized by generality across novel stimuli, and will include a wide variety of tacts, including but not limited to:
  - Tacting common objects
  - Tacting pictures of common objects
  - Tacting ongoing actions
  - Tacting pictures of actions
  - Tacting parts and features of objects
  - Tacting adjectives
  - Tacting by class

In order to teach intraverbal responding in as typical of ways as possible, vocal prompts should not be used just because the learner has not been taught the tact. Teach the tact first, then teach the intraverbal.

Verbal Phrase---------Tact Stimulus-----R
("You cut with a…...") (object – knife) “knife”
("What do you cut with?") (object – knife) “knife”

FADE
Verbal Phrase-------------------R
("You cut with a…...") “knife”
("What do you cut with?") “knife”

**PREREQUISITE SKILLS**

**TEACHING IFFCS: STEP 1**
- Teach single response IFFC fill-ins or “wh” questions using a tact to intraverbal transfer procedure whenever possible (Goldsmith, LeBlanc, & Sautter, 2007; Ingvarsson & Hollobaugh, 2011). This is recommended because, in persons with typically developing language repertoires, the tact repertoire often supports or facilitates the intraverbal repertoire.
- In order to teach intraverbal responding in as typical of ways as possible, vocal prompts should not be used just because the learner has not been taught the tact. Teach the tact first, then teach the intraverbal.

**IFFC STEP 1 TARGET SELECTION**
- Select functional targets
- Try to select multiple targets related to one stimulus (e.g., shirt) across several skill areas simultaneously
  - H7 – Something you wear is a shirt
  - H8 – A shirt is something you wear
  - H9 – A shirt has sleeves
  - H10 – Something with sleeves is a shirt
  - H11 – A shirt is a type of clothing
  - H12 – Tell me a type of clothing

**IFFC STEP 1 ERRORLESS TEACHING PROCEDURES:**

1. **Prompt:** Present the instructional demand (Sstim) and immediately (0-second time delay) prompt the learner to respond.
2. **Transfer/Fade:** Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.
3. **Distracters:** Require 1-5 easy, mastered responses.
4. **Probe:** Re-present the instructional demand and further fade the prompt or probe by waiting 3 seconds for the response to be emitted.
5. **Reinforce or Error Correct:**
   - If the learner’s response is correct, deliver a reinforcer. Differentially reinforce as appropriate.
   - If the learner’s response is incorrect, run the error correction procedure.

**MODIFY THESE PROCEDURES AS NEEDED BASED UPON INDIVIDUAL LEARNER PERFORMANCE.**
**IFFC STEP 1 TEACHING EXAMPLE**

**Teacher:** Says, “A giraffe eats…,” and immediately presents a picture of leaves. (PROMPT)

**Learner:** Signs (or says), “leaves.”

**Teacher:** Says, “A giraffe eats…,” and waits 2 seconds to allow learner to respond (TRANSFER) or fades some aspect of the prompt, perhaps by quickly flashing the picture (FADE).

**Learner:** Signs (or says), “leaves.”

 Runs 1-5 distracters.

**Teacher:** Says, “A giraffe eats…,” without prompts. (PROBE)

**Learner:** Signs (or says), “leaves.”

**Teacher:** “Good job,” while delivering a chip and turning on the TV.

**DEFINING INCORRECT IFFC STEP 1 RESPONSES**

An error (i.e., incorrect response) occurs when the learner:

1. Emits a response not scheduled for reinforcement (i.e., wrong answer),
2. Chains two or more responses together (i.e., self-corrections or provides multiple members of the response class),
3. Or fails to respond within 2-3 seconds following the presentation of the demand.

**IFFC STEP 1 ERROR CORRECTION PROCEDURE**

1. **Prompt:** Re-present the instructional demand (SD) and immediately (0-second time delay) prompt the learner to respond.
2. **Transfer/Fade:** Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.
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   - If the learner’s response is incorrect, run the error correction procedure again.

**EXAMPLE of IFFC STEP 1 ERROR CORRECTION**

**Teacher:** Says, “Tell me something that has pages….”

**Learner:** Signs (or says), “pretzel.” (ERROR)

**Teacher:** Says, “Tell me something that has pages…” (REPRESENT SD), and immediately presents a picture of a book. (PROMPT)

**Learner:** Signs (or says), “book.”

**Teacher:** “Good for you,” while delivering a chip and turning on the TV.

**Video – IFFC Step 1 Teaching Procedure**

**Video – IFFC Step 1 Error Correction**
ADDITIONAL IFFC STEP 1 VIDEOS

Video – Katy early IVs during DTI
Video – Katy IVs during DTI
Video – Andre IVs during DTI
Britt and Jean Marie
Ian with Jean Marie
Max early intraverbals
Vincent Intraverbals

TEACHING IFFCS: STEP 2 – INTRAVERBAL WEBBING

• The name of this step/protocol is: Intraverbal Webbing Protocol (Semantic Feature Mapping)

• The purpose of the intraverbal webbing procedure is to teach advanced IFFC skills which will facilitate stimulus and response generalization and establish stimulus and response classes.

• The recommended teaching procedures are designed to develop flexibility and avoid rote responding (e.g., that can develop when teaching multiple responses using backward chaining).

STIMULUS and RESPONSE GENERALIZATION

• Stimulus Generalization – when stimuli that share similar physical properties evoke the same response

• Response Generalization – when multiple responses that are functionally equivalent are evoked by the same stimulus

(adapted from Cooper, Heron, and Heward, 2007)

STIMULUS and RESPONSE CLASSES

<table>
<thead>
<tr>
<th>STIMULUS CLASS</th>
<th>RESPONSE CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher says:</td>
<td>Learner says:</td>
</tr>
<tr>
<td>something round</td>
<td>something round</td>
</tr>
<tr>
<td>something you throw</td>
<td>something you throw</td>
</tr>
<tr>
<td>something you kick</td>
<td>something you kick</td>
</tr>
<tr>
<td>something you play with</td>
<td>something you play with</td>
</tr>
</tbody>
</table>

TARGET SELECTION

• Select functional targets.
• Pick 2-4 mastered, functional tacts (each from a different class).
• Develop 4-6 feature, function, and class (FFC) fill-in phrases or “wh” questions (i.e., S0) for each known tact that you will teach. Choose S0s that can later be grouped into “concepts” (e.g., “things you wear,” “things with sleeves,” “types of clothing”) so as to simultaneously teach stimulus and response classes. For example, for shirt: H7 – “Something you wear is a … shirt” H8 – “A shirt is something you … wear” H9 – “A shirt has … sleeves” H10 – “Something with sleeves is a … shirt” H11 – “A shirt is a type of … clothing” H12 – “Tell me a type of clothing … shirt”

• When creating targets, remember that each FFC in the S0 should be mastered as a tact.
  – Before teaching, “A shirt has … sleeves,” “shirt” should be a mastered tact and “sleeve(s)” should be a mastered tact (part of a shirt).
  – Before teaching, “A magazine is something you … read,” “magazine” and “reading” should be mastered as tacts.
  – Before teaching, “Tell me something that comes in many colors … markers,” various colors (e.g., red, green, yellow, blue, purple) and “markers” should be mastered as tacts.
  – Word the S0 in a natural way; do not select awkward S0s just to force multiple responses.
MATERIAL MANAGEMENT

- As you are developing targets, write each fill-in phrase/"wh" question and the target response on a blue index card labeled with the skill area (e.g., H7 – H12).
- Also prepare a picture of the target response (whenever possible) that will be used as a prompt during teaching.
- If only one picture will be necessary to prompt the multiple responses that will be taught in the future, tape that picture to the back of the index card. For example,
  - H9 a shirt has… (with picture of shirt on back so you can point to the sleeves)
- If more than one picture will be necessary to prompt the multiple responses that will be taught in the future, store the pictures for targets across all Intraverbal Webbing skills in a box divided with tabs labeled by skill area and concept. For example,
  - H7 s/t you wear (with picture of shirt)
  - H10 s/t with sleeves (with picture of shirt)
  - H12 clothing (with picture of shirt)

INTRAVERBAL WEBBING: TEACHING the 1ST MEMBER of the RESPONSE CLASS

- For the first member of each response class use the errorless teaching procedures previously described: PROMPT – TRANSFER/FADE – DISTRACTERS – PROBE.

INTRAVERBAL WEBBING ERRORLESS TEACHING PROCEDURES for 1ST MEMBER of the RESPONSE CLASS: PROMPT – TRANSFER/FADE – DISTRACTERS – PROBE

1. Prompt: Present the instructional demand (SD) and immediately (0-second time delay) prompt the learner to respond.
2. Transfer/Fade: Re-present the instructional demand and fade some dimension of the prompt (e.g., fade from a physical to a gestural prompt, use a phonemic prompt instead of a full word, decrease physical guidance) or implement a 2-second time delay and allow the learner to respond.
3. Distracters: Require 1-5 easy, mastered responses.
4. Probe: Re-present the instructional demand and further fade the prompt or probe by waiting 3 seconds for the response to be emitted.
5. Reinforce or Error Correct: If the learner’s response is correct, deliver a reinforcer. Differentially reinforce as appropriate. If the learner’s response is incorrect, run the error correction procedure.

MODIFY THESE PROCEDURES AS NEEDED BASED UPON INDIVIDUAL LEARNER PERFORMANCE.

INTRAVERBAL WEBBING: TEACHING the 1ST MEMBER of the RESPONSE CLASS EXAMPLE

Teacher: Says, “Tell me something you see at the zoo…,” immediately presents a picture of a lion, and simultaneously models (or says) the sign (or word) for “lion.” (PROMPT)
Learner: Signs (or says), “lion.”
Teacher: Says, “Tell me something you see at the zoo…,” and waits 2 seconds to allow learner to respond (TRANSFER) or fades some aspect of the prompt, perhaps by quickly flashing the picture (FADE).
Learner: Signs (or says), “lion.”
Teacher: Signs (or says), “lion.”
Teacher: “Nice job,” while turning on the TV.

DEFINING INCORRECT RESPONSES and ERROR CORRECTION PROCEDURE for INTRAVERBAL WEBBING TEACHING the 1ST MEMBER of the RESPONSE CLASS

- An incorrect response is defined the same as it was for IFFC Step 1 skills.
- Use the same error correction procedure as previously described for IFFC Step 1 skills.

DIAGRAM for INTRAVERBAL WEBBING: TEACHING the 1ST MEMBER of the RESPONSE CLASS EXAMPLE

Transfer of stimulus control from the non-verbal stimulus (plus vocal or model prompt) to the vocal SD.
INTRAVERBAL WEBBING: TEACHING ADDITIONAL MEMBERS of the RESPONSE CLASS

- Present the learner with the S0 and allow the learner to fill-in previously mastered response(s). (Example: “Tell me a vehicle” learner says “car.”)
- Repeat the S0 and prompt the next target response using a 0-second time delay with a picture card (i.e., tact).
- Immediately following the learner’s correct response, briefly reinforce.
- Repeat this at least once (and up to three additional times as necessary to modify for the individual learner). On each additional presentation, fade some aspect of the prompt (e.g., fade from holding the card up for a full 1-2 seconds to quickly flashing the card).

INTRAVERBAL WEBBING: TEACHING the 2nd MEMBER of the RESPONSE CLASS

1st response: “apple” = previously mastered  
2nd response: “cookie” = target response

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Good job” while turning on the TV for about 10 seconds.

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Good job” while turning on the TV for about 10 seconds.

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Good job” while delivering a candy and turning on the TV for about 30 seconds.

Learner specific adjustments: Repeat additional probes as needed. Use greater magnitude or variety of reinforcers as needed.

INTRAVERBAL WEBBING: PROBE for NOVEL RESPONSES

- Once you have taught two to three members of a response class, probe to see if the learner will emit novel (i.e., generalized or untrained) responses.
- If the learner emits novel responses, differentially reinforce with a large magnitude of highly preferred reinforcers.

Video – Webbing: Probe for Novel Responses

- If the learner does not emit novel responses, continue teaching 4th and 5th members of the response class.

Video – Webbing: Teaching 4th and 5th Responses

- If novel responses are not emitted after 5 members of the response class have been taught, do not continue to teach additional members of that response class. Instead, begin teaching responses within a different response class.

INTRAVERBAL WEBBING: TEACHING the 3rd MEMBER of the RESPONSE CLASS

1st & 2nd response: “apple” and “cookie” = previously mastered  
3rd response: “banana” = target response

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Tell me something else you eat” and displays picture of banana  
Learner: “Banana”  
Teacher: “Good job” while turning on the TV for about 10 seconds.

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Tell me something else you eat” and displays picture of banana  
Learner: “Banana”  
Teacher: “Good job” while turning on the TV for about 30 seconds.

PROMPT:  
Teacher: “Tell me something you eat.”  
Learner: “Apple”  
Teacher: “Tell me something else you eat” and displays picture of cookie  
Learner: “Cookie”  
Teacher: “Tell me something else you eat” and displays picture of banana  
Learner: “Banana”  
Teacher: “Good job” while delivering a candy and turning on the TV for about 30 seconds.

Learner specific adjustments: Repeat additional probes as needed. Use greater magnitude or variety of reinforcers as needed.

INTRAVERBAL WEBBING: DEFINING INCORRECT RESPONSES

- Four types of responses will be considered errors (i.e., incorrect responses):
  - Incorrect responses (Example: “Tell me a vehicle” and the learner says “bird”),
  - Repeated responses (Example: “Tell me a vehicle” the learner says “car” “Tell me another vehicle” the learner says “car”),
  - Emitting multiple members of the response class (Example: “Tell me a vehicle” the learner says “car, boat, airplane”),
  - Or failure to respond within 2-3 seconds.

Video – Webbing: Probe for Novel Responses
INTRAVERBAL WEBBING: ERROR CORRECTION PROCEDURE

- If the learner emits an error at any point during instruction, use the following error correction procedure:
  - Provide a 5-second time out which includes turning face away from learner and withholding attention. This is when you should gather your materials (i.e., non-verbal stimuli/pictures) with which to prompt.
  - Restart the trial following the teaching procedures listed previously.
  - Prompt at the numbered response on which the learner erred. For example, if the learner emitted two correct responses and erred on the third response, be ready to prompt the third member of the response class.
- If the learner has previously mastered additional members of the response class (e.g., mastered four responses and now teaching fifth response, but erred on third response), go through the teaching procedure building up one member at a time (i.e., to re-strengthen the response class) until the learner is emitting all previously mastered members of the response class (and the current target response if the error occurs during teaching). In other words, error correct the third, then the fourth, then the fifth responses.

A VARIATION on TEACHING INTRAVERBAL WEBBING MULTIPLE RESPONSES

- Based on the strength of their intraverbal repertoire and their rate of acquisition, it may be possible/appropriate to teach some learners to emit multiple members of the response class when the teacher presents a single S+.
  - For example, Teacher: “Name some vehicles.”
  - Learner: “Bus, boat, airplane, car.”
- It will not be appropriate to teach this skill to all learners. Without an appropriately sufficient intraverbal repertoire and strong conditional discriminations, many learners will emit responses taught in this way as a single response unit, and it will be difficult to teach them to emit only one member of the response class at a time, something that is critical to the next steps of the Intraverbal Webb procedure.

TEACHING PROCEDURES for VARIATION on INTRAVERBAL WEBBING PROCEDURE

- For example, Teacher: “Tell me something you wear.”
  - Learner: “Underwear” (ERROR)
  - Teacher: “Tell me something else you wear.”
  - Learner: “Shirt”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Underwear” (ERROR)
  - Teacher: “Tell me something else you wear.”
  - Learner: “Socks”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Hat”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Gloves”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Shirt”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Underwear” (ERROR)
  - Teacher: “Tell me something else you wear.”
  - Learner: “Shirt”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Gloves”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Socks”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Hat”
  - Teacher: “Tell me something else you wear.”
  - Learner: “Underwear”

TARGET SELECTION for VARIATION on INTRAVERBAL WEBBING PROCEDURE

- Select concepts across IFFC skill areas with a sufficiently large number of response class members so that you can require the learner to emit a specific number of responses on probes, teach more responses than you will require the learner to emit, and still allow for the learner to demonstrate generalized/novel responding by emitting additional untaught members of the response class.
- For example, “Name some vehicles.”
  - The learner required to emit 4 responses on probes.
  - During teaching, the teacher prompts 7 responses (i.e., bus, boat, airplane, car, fire truck, tractor, ambulance).
  - This still leaves additional members of the response class for the learner to emit as novel responses (e.g., helicopter, police car, school bus, ship, truck, dump truck).

DEFINING INCORRECT RESPONSES for VARIATION on INTRAVERBAL WEBBING PROCEDURE

- Four types of responses will be considered errors (i.e., incorrect responses):
  - Incorrect responses (Example: “Name some vehicles” and the learner says “bird”),
  - Repeated responses (Example: “Name some vehicles” the learner says “car, boat, car”),
  - Single responses (Example: “Name some vehicles” and learner says “car” and pauses for more than 3 seconds and/or does not continue if only prompted once to “keep going” or “tell me more”),
  - Or failure to respond, or continue to respond with additional similar examples, within 2-3 seconds
ERROR CORRECTION PROCEDURE for VARIATION on INTRAVERBAL WEBBING PROCEDURE

• If the learner emits an error at any point during instruction, use the following error correction procedure:
  – Provide a 5-second time out which includes turning face away from learner and withholding attention. This is when you should gather your materials (i.e., non-verbal stimuli/pictures) with which to prompt.
  – Restart the trial following the teaching procedures listed previously.
  – Adjust as necessary to prevent the learner from repeating errors (e.g., conducting three or four prompt trials before a probe trial).

EXAMPLE of ERROR CORRECTION PROCEDURE for VARIATION on INTRAVERBAL WEBBING PROCEDURE

PROBE:
Teacher: Says, “Tell me some animals,” without laying the teaching stimuli (pictures) on the table.
Learner: Signs (says), “elephant, frog, cat, elephant”

ERROR CORRECTION:
Teacher: 5 second time out without attention given to learner.
Teacher: Follows the teaching procedure previously described for the variation on the Intraverbal Webbing procedure (i.e., lays out all teaching stimuli and prompts response, repeats prompt 1 – 3 more times, probes, and repeats additional probes as necessary).

Video – Webbing Variation Error Correction
Video – IVs during DTI

INTRAVERBAL WEBBING: NEXT STEPS

• Fill out the FFC Summary Sheets.
• Fill out the Concept Summary Sheets.
• Fill out the Concept Maps.
• Practice “webbing” across the related Concept Maps.

***This is the most critical component of the IV Webbing/Semantic Feature Mapping Protocol. Without this step, functional conversational skills will be highly unlikely to develop. Begin this step as early into Steps 1 and 2 (single and multiple response intraverbal fill-ins) as possible, even if the early webs only have 1 – 2 responses/branches.

FILL-OUT the FFC SUMMARY SHEETS

• Write abbreviations for all of your targets on the FFC Summary Sheets.
• Label each target on the FFC Summary Sheet with the correlating ABLLS goal. List the “forwards” (e.g., “Tell me an animal… dog; H7, H10, H12) on the left and the “reversals” (e.g., “A dog is an… animal; H8, H9, H11) on the right.
FILL-OUT the CONCEPT SUMMARY SHEETS

- Review your FFC Summary Sheet and begin to group targets/Ss into "concepts" that will contain multiple exemplars (e.g., things that go, food, vehicles, etc.).

- Write these concepts on the Concept Summary Sheets.

- Once a target has been retained you will write that target under the corresponding “concept” on the Concept Summary Sheet.
FILL-OUT the CONCEPT MAPS

• Once concepts have been identified write those concepts (e.g., “things that fly”) on the Concept Maps.

• As targets within each concept are mastered, add those to the Concept Maps.

• Add novel responses to the Concept Maps as well.

• Use the arrows to indicate directionality of the responses.

• Highlight separate concepts that web off from the central concept on each map.

PRACTICE WEBBING ACROSS the RELATED CONCEPT MAPS

• Once enough exemplars have been taught within each stimulus and response class that you can begin to web (i.e., make connections) across several different maps, begin to web across concepts using the Concept Maps.

• For example, if a learner has mastered, “Tell me an animal… dog/cat/bird,” as a multiple response; “A cat has a… tail,” “Something with a tail is a… cat,” “A cat is an… animal” and “A bird flies in the… sky,” as individual intraverbal targets, an early intraverbal web might expand as follows:

S

D: “Tell me an animal”
R: “Dog”
S: “And, how about another animal?”
R: “Bird”
S: “And one more animal”
R: “Cat”
S: “And a cat has a…”
R: “Tail”
S: “Right, and something with a tail is a…”
R: “Cat”
S: “And a cat is an…”
R: “Animal”
S: “So, tell me an animal”
R: “Dog”
S: “And another animal…”
R: “Cat”
S: “How about another animal?”
R: “Bird”
S: “And a bird flies in the…”
R: “Sky”
Data Collection and Graphing

DATA COLLECTION SYSTEM for ACQUISITION of SKILLS

- Recording data on the targeted response on a daily basis allows instructors to monitor progress of the student frequently.
- Discontinuous (i.e., first trial probe) data collection, as opposed to continuous (i.e., trial-by-trial) data collection, is recommended for the following reasons (Cummings & Carr, 2009; Dollins & Carbone, 2003; Lerman, Dittlinger, Fentress & Lanagan, 2011; Najdowski et al., 2009):
  - First trial probe data collection is less time consuming, which results in more time being spent teaching.
  - First trial probe data collection is equally as efficient (amount of time to mastery).
  - First trial probe data may be equally as effective at leading to maintenance of skills over time, although some results suggest slightly lower maintenance over time for skills mastered using cold probe data.

MASTERY CRITERIA

- The criterion for mastery in baseline is correct responses on 3/3 baseline probes (i.e., no reinforcement, no error correction).
- If a target is not "mastered in baseline," then once it is entered into teaching the criteria for mastery for yes/no first trial probes is a number of consecutive days with a correct response on the first trial probe (e.g., 5 days) as well as a correct response on a retention probe conducted 7 days later.
- The number of consecutive days with a correct response on first trial probes that is required for mastery is determined by the instructor based upon the individual learner. Frequently the number of consecutive days may vary from 2 consecutive days up to 10.

DATA BOOK SET-UP

- A data book should be developed for recording student progress with acquisition of skills.
- The following data sheets should be included within each skill area/objective sub-section of the data book:
  - Yes/No probe sheet
  - Skills tracking
  - Cumulative graph

Y/N Probe Data Sheet

**Description:**
- The Y/N probe data sheet will be used daily to record the accuracy of student responses to first trial probes conducted each day for each target across all skill areas. First trial probes are scored as "Y" for correct or "N" for incorrect (see previous response definitions).
- The Y/N probe data sheet includes a space for recording the student’s name, the skill area, and whether the data reflect acquisition or maintenance data.
- The Y/N probe data sheet also includes a series of rows and columns. The rows on the left-hand side of the page are the areas where individual targets will be recorded. The columns provide a space to record the date of the probe and a space to record the accuracy of student responses.

**How to Use:**
- A Y/N probe data sheet should be set up for each skill area currently being targeted during DTI. Two to three targets in each area should be listed on the data sheet.
- The date on which probes were conducted should be written in the boxes above the Y/N boxes.
- Phases, acquisition criteria, and/or teaching procedures should be labeled in the row above the dates.
- During baseline, acquisition, or retention probes, a “Y” should be circled on the data sheet to indicate a correct response, and an “N” should be circled to indicate an incorrect response. Data points should be connected within phases to show trends.
- Black phase change lines should be drawn to indicate changes in phases (e.g., baseline to teaching, teaching to retention).
- Yellow highlighter should be used to indicate when the acquisition criterion was met. Pink highlighter and a red phase change line should be used to indicate when the retention criterion was met.
Skills Tracking Sheet

**Description:**
- The skills tracking sheet is used to record the date on which targets were introduced, acquired, and retained.
- The sheet includes a space for the student’s name, the skill area targeted, individual targets, and relevant dates.

**How to Use:**
- When targets are selected for teaching they should be immediately added to the skills tracking sheet.
- The date on which baseline probes were conducted should be recorded under the column “Date Introduced.”
- When the 3 consecutive day criterion is achieved (or other number depending on individual learners), this date should be recorded under the “Date Acquired” column.
- Finally when a retention probe is conducted and the student responds correctly, the date should be included under the “Date Retained” column.

Cumulative Graph

**Description:**
- The cumulative graph is used as a visual display of student progress over time. Through visual inspection it can be determined whether the student is continuing to make gains or if limited progress has been made and therefore revisions to current teaching practices are necessary.
- The visual display and analysis of data is a hallmark of applied behavior analysis and an essential component to any behavior analytic program.
- Failure to collect, graph, and analyze data will result in limited student progress over time.
- The cumulative graph provided has spaces to record the student’s name, the period of time the graph extends through, and the skill area being targeted.
- This cumulative graph is used to visually display the cumulative number of targets retained per week.

**How to Use:**
- Once per week, the cumulative graph should be updated to show the cumulative number of targets retained in the given skill area up to that point.
- On the bottom of the graph is a space to record the date of the weekly graphing.
- The graph is scaled to 50 and each line of the graph indicates an increase of one, although the scale of the graph can be changed based on an individual learner’s rate of progress.
- Once per week, the teacher should count up the total number of targets retained in each skill area and plot a data point on the graph at the correct point. Data points should be connected by a straight line.
- Cumulative graphs can never go down because they show how many targets have been retained up to that point. Cumulative graphs can only go up or stay at the same level. A graph that shows data points moving upward indicates progress. A graph that shows data points at the same level over 2 or more weeks indicates that no additional progress has been made, and therefore indicates that a change to instructional procedures should be implemented.
- Black phase change lines should be drawn to indicated changes to instructional practices. Red phase change lines should be drawn when a graph is discontinued (e.g., because a learner mastered that objective).
Skills Tracking: When introducing a new set into conditional discrimination:

- Record set (e.g., set 1: item/color), all training stimuli, and date introduced on conditional discrimination skills tracking sheet.
- When the learner meets the criterion for Phase 1 (i.e., ≥ 90% correct across 2 sessions), enter the Phase 1-Date Criteria Met on the skills tracking sheet.
- When the learner meets the criterion for Phase 2 (i.e., ≥ 90% correct across 2 sessions), enter the Phase 2-Date Criteria Met on the skills tracking sheet and write NA in the phase 3 column.
- After the learner meets criteria for Phase 1 and Phase 2, record the first novel set of stimuli on the skills tracking sheet, the date introduced, and write NA in phases 1 and 2 columns.
- When the learner meets the criterion for the first set of novel stimuli, record the second novel set of stimuli on the skills tracking sheet, the date introduced, and write NA in phases 1 and 2 columns.
- If a set does not meet the criterion in the novel phase, write “failed novel probe” for the Phase 3-Date Criteria Met on the skills tracking sheet. The 6 stimuli from the failed novel probe will now be introduced on the skills tracking sheet as a new set (i.e., these will now be the training stimuli for the next set).
- If both sets of novel stimuli meet criteria (i.e., two sets of novel stimuli ≥ 90%), the set will be considered mastered. Record the date that the second set of novel stimuli met the mastery criterion for Phase 3 on the skills tracking sheet for BOTH sets of novel stimuli (i.e., all twelve stimuli used for both novel sets in Phase 3) and count these 12 novel stimuli into the cumulative skills mastered.

Graphing:

- Percent of trials with correct responses for each target set as recorded on the conditional discrimination data sheet

Graphing (Percent of trials with correct responses for each target set as recorded on the conditional discrimination data sheet):

- Label the title, x-axis, and y-axis.
- Write the mastery criteria for phase 1 in the space above the graph (independent variable column).
- Once the learner meets the 2 consecutive days ≥ 90% correct criteria, draw a black phase line to the right of the second data point.
- Write the mastery criteria for phase 2 in the space above the graph (independent variable column).
- Once the learner meets the 2 consecutive days ≥ 90% correct criteria, draw a black phase line to the right of the second data point.
- If the learner failed the novel probe, use those stimuli as teaching set 2 and set up the second graph beginning at phase one as described above.
- Write the mastery criteria for phase 3 in the space above the graph (independent variable column).
- If the learner meets the 2 consecutive days ≥ 90% correct criteria, draw a red phase line to the right of the second data point indicating that that set 1 is mastered and label “mastered” in red.
- If the learner “fails” phase 3 (i.e., scores below a 90% correct on either of the two novel probes), draw a red phase line and label “failed novel probe”.
- Also graph the cumulative G11 Conditional Discrimination skills mastered per week (always increases 12 at a time) as previously described for LRFFC, TFFC, and IFFC targets.
REFERENCES


